BIODIESEL PRODUCERS – MARKET SEGMENTATION AND DISTRIBUTION POLICY CASE STUDY – "GREENERGY INTERNATIONAL LTD"

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Abstract:

The energy agenda of the European Union, developed by the European Commission, is based on three pillars – creating a competitive European energy market, creating a sustainable energy market and assuring energy safety. These three pillars represent the foundation on which the European Union is building a low consume economy. Through market segmentation, a company can adapt its product or service offer to the specific needs of the targeted segment; communicating and distributing it to its customers in a more effective way. The distribution policy of a company contains the establishment of the marketing channel, and also the development of the strategy regarding the ware logistics. Greenergy International LTD is a Great Britain based company, which has as main activity the supply of fuel and energy, with a low environmental impact.

Keywords: *energy agenda, market segmentation, distribution policy*

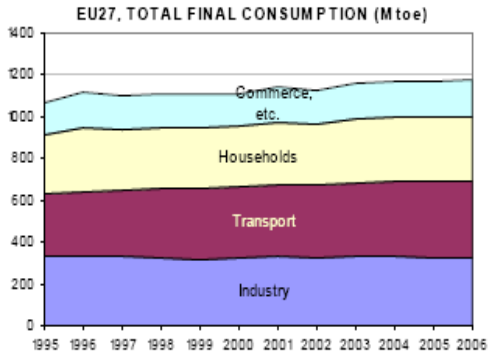
Energy agenda of the European Union and Great Britain's energy market

The energy agenda of the European Union, developed by the European Commission, is based on three pillars – creating a competitive European energy market, creating a sustainable energy market and assuring energy safety. These three pillars represent the foundation on which the European Union is building a low consume economy. The development of this energy agenda in the year 2007 was a response of the European Union to a set of three energy-related challenges: European Union's dependency of energy imports, high levels of CO2 emissions and the less competitive European energy market. In terms of competition, the vertical integration of the activities of the European energy market players presumes a total control of the supply (energy quantity, quality and price), which affects the energy users and final energy consumers. The competition within the European energy market could be steamed up through the separation of the energy production and the energy distribution system. Creating a common distribution network, managed by an "Independent System Operator" (the Independent System Operator only manages the

network, its property is hold totally or partially by the different European energy market players), would reveal opportunities for new energy market actors (producers), which, formerly, did not have the financial power or access to the distribution network in order to compete against the already established private owned or public companies.

Assuring an energy safety – another priority of the European Commission in terms of energy – denotes the concern of the European Union regarding the vulnerability of the Union for energy imports. Thus, a minimization of the energy imports would prevent potential energy supply gaps or energy crises. Such a minimization of the energy imports could be achieved by using more renewables in the "energy mix". Also, the usage of renewables for producing green energy would reduce substantially the CO2 emissions of the European Union (the third priority of the European Commission). This fact implies progress to be made in the three main sectors which use renewables based energy: electricity, transportation and heating and cooling systems. In November 2008, the European Commission undertook a second strategic revision of its energy agenda – "Second Strategic Energy Review – An EU Security and Solidarity Action Plan" (http://ec.europe.eu/energy/strategies) – with the purpose of reviewing its targets established in 2007, of which the most important are: the achievement of a 20% share of renewable energy sources in final energy consumption at EU level by 2020, the 10% target for biofuels by 2020 and the reduction of greenhouse gas emissions by at least 20% in 2020 compared to the 1990 levels. Using the data published by Eurostat, I will present in the following sections an overview of the European Union's actual energy situation, in general and the situation of renewable sources in particular.

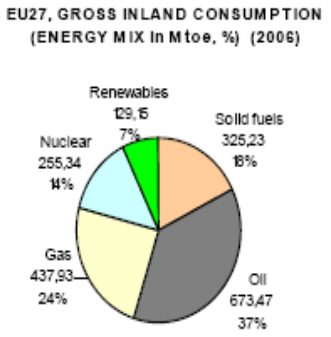
Figure 1 illustrates the total final energy consumption by sectors within the EU27. In 2006, the transport sector was the biggest energy consumer, consuming approximately 400 million tons of energy (almost 30% of the total energy consumption within the EU27), while the other industries and households accounted respectively for 28% and 26%.



Source: Eurostat

Figure 1 – Total final consumption (Mtoe)

Figure 2 contains information about the energy mix within the EU27 in the year 2006. Oil remains the most used source for producing energy, reaching a 37% level (673.47 million tons) of the total energy mix. The gas and nuclear energy shares comprised respectively 24% and 14% of the gross inland consumption. According to the report of the Second Strategic Energy Review, the share of renewable sources in the energy mix gained, during the time period 1990-2007, almost three percentage points. Half of this increase was achieved during the years 2000-2006, thus reflecting the effectiveness of the EU policy.



Source: Eurostat

Figure 2 – Gross inland consumption (energy mix in Mtoe, %)

The main characteristics of Great Britain's energy market can be described using the information of the same report. Table number 1 presents in a dynamic way the evolution of the main energy-related indicators, like: gross inland energy consumption, net energy imports, final energy consumption etc. It is worth mentioned the fact that Great Britain's energy dependency has reached 21.8% in 2006, which means that 21.8% of Great Britain's energy consumers were actually consuming imported energy. The energy import is structured in two main parts: oil and gas imports (respectively 7496 thousand tons, 9553 thousand tons).

After segmenting Great Britain's energy market by economic sectors and by type of used energy source (Table number 2), it can be observed that the transport sector consumes the biggest part of the petroleum products. Motor spirit and diesel oil are petroleum products made out of crude oil, which, in 2006, were consumed in a quantity of 19.116, 22.369 million tons, respectively.

Table 1 – Energy economy of Great Britain. Key figures and energy indicators.

1. Energy economy
Key figures and energy indicators

		UNITED KINGDOM					
		2001	2002	2003	2004	2005	2006
Energy statistics							
Primary energy production	*1000 toe*	258 724	254 905	243 171	223 166	202 524	183 946
Net energy imports		-21 645	-28 239	-14 583	11 079	32 293	49 295
Net oil imports		-35 955	-39 424	-27 921	-14 003	-2 278	7 496
Net gas imports		-8 340	-6 983	-7 022	1 464	5 973	9 552
Gross inland energy consumption		232 720	226 832	231 157	232 527	233 311	229 525
Final energy consumption		153 343	148 956	150 779	151 937	152 188	150 565
Industry		36 334	34 877	35 580	34 136	34 296	33 608
Transport		51 758	52 042	52 665	53 912	55 187	56 060
Services and households etc.		65 251	62 037	62 533	63 889	62 706	60 897
Gross electricity generation	*GWh*	384 789	387 247	396 207	393 867	396 403	398 327
Final electricity consumption		332 723	333 402	336 218	338 950	344 865	342 786
Socio-economic statistics							
Gross domestic product	*Mio EUR 1995*	1 046 324	1 067 807	1 097 382	1 133 142	1 153 977	1 187 707
Population	*1000 per.*	59 000	59 218	59 438	59 700	60 060	60 393
Industry added value	*Mio EUR*	261 338	258 647	260 086	263 639	260 369	260 946
Total imports (current prices)	*Mio EUR*	405 810	425 459	433 916	462 667	495 638	544 099
among which:							
All energy commodities		16 265	15 139	16 083	23 814	34 205	43 184
Oil products		13 540	12 815	14 029	19 846	27 766	35 254
Energy intensity							
Gross inland consumption / GDP(95)	*kgoe/1 000 EUR*	222.4	212.4	210.6	205.2	202.2	193.3
Final energy consumption / GDP(95)		146.6	139.5	137.4	134.1	131.9	126.8
Energy intensity of industry:							
Final consumption / gross value-added mp		139.0	134.8	136.8	129.5	131.7	128.8
Energy intensity of service sector:							
Final consumption / gross value-added mp		28.4	24.8	24.0	23.7	22.9	21.6
Energy consumption per inhabitant							
Gross inland consumption / capita	*kgoe/cap.*	3 944	3 830	3 889	3 895	3 885	3 801
Final energy consumption / capita		2 599	2 515	2 537	2 545	2 534	2 493
Household consumption / capita		750	730	738	748	723	696
Final electricity consumption / capita	*kWh/cap.*	5 639	5 630	5 657	5 678	5 742	5 676
Energy dependency							
Net energy imports / Gross consumption	*in %*	-9.2	-12.3	-6.3	4.7	13.7	21.3
Energy efficiency							
Final energy consumption/Gross inland consumption	*in %*	65.9	65.7	65.2	65.3	65.2	65.6
Efficiency of thermal power stations		42.4	43.9	43.2	43.3	43.0	43.5

Table 2 – Great Britain's energy consumption by economic sector

		UNITED KINGDOM					
In 1 000 toe		2001	2002	2003	2004	2005	2006
Final energy consumption							
Total		153 343	148 956	150 779	151 937	152 188	150 565
among which:	Solid fuels	5 649	4 821	4 968	4 690	4 418	4 520
	Petroleum products	63 371	62 422	62 916	64 315	65 917	66 497
	Natural Gas	52 033	49 711	51 031	51 372	49 906	47 480
	Renewables	542	565	596	603	570	761
	Electricity	28 609	28 667	28 910	29 144	29 653	29 474
Final energy consumption by sector							
Industry							
Total		36 334	34 877	35 580	34 136	34 296	33 608
among which:	Solid fuels	4 142	3 645	4 004	3 891	3 823	3 976
	Petroleum Products	6 637	6 552	7 050	6 767	7 024	6 986
	Natural Gas	13 917	12 782	12 863	11 914	11 842	11 125
	Renewables	201	206	217	216	128	126
	Electricity	9 573	9 686	9 747	9 960	10 191	10 000
Transport							
Total		51 758	52 042	52 665	53 912	55 187	56 060
among which:	Motor spirit	22 060	21 919	20 980	20 527	19 739	19 116
	Diesel oil	17 941	18 443	19 736	20 337	21 359	22 369
	Jet fuel	10 913	10 816	11 067	11 927	12 810	12 956
	Electricity	759	727	706	728	737	733
Services&households							
Total		65 251	62 037	62 533	63 889	62 706	60 897
among which:	Solid fuels	1 508	1 176	964	799	595	543
	Gas oil	1 857	1 627	964	1 237	1 530	1 349
	Natural Gas	38 115	36 929	38 168	39 458	38 064	36 354
	Renewables	341	356	365	371	372	370
	Electricity	18 277	18 255	18 456	18 456	18 725	18 741
	Heat	1 274	763	659	425	438	438

Table number 3 contains information regarding the production and consumption of energy based on renewable resources, as well as a distribution of this consumption depending on the economic sector, types of renewable resources and other variables. It is important to mention the fact that biomass is the most produced renewable resource (in comparison with the other types of renewable resources), reaching a quantity of 3251 thousand tons in the year 2006, followed by the hidro resource with a produced quantity of 396 thousand tons. The transport sector consumed 265 thousand tons of biomass in the year 2006, showing an increase of 378% in comparison with the year 2005. This increase in the biomass consumption of the transport sector denotes the growing importance of using alternative fuels in this sector.

Table 3 – Production and consumption of renewable energy sources by economic sector

7. Renewable energy sources

	UNITED KINGDOM					
	2001	2002	2003	2004	2005	2006
Primary production						
Total primary production *In 1000 toe*	2 516	2 784	2 871	3 146	3 625	4 048
Hydro (excl. pumping)	349	412	277	416	423	396
Wind	83	108	110	166	250	363
Solar	13	16	20	25	30	37
Geothermal	1	1	1	1	1	1
Biomass	2 070	2 247	2 462	2 538	2 921	3 251
among which:						
Wood, wood-waste	633	705	723	591	883	801
Municipal solid waste	532	583	612	593	598	647
Biogas	904	960	1 128	1 353	1 440	1 499
Gross inland consumption	2 516	2 787	2 978	3 499	4 048	4 425
Inputs to electricity and heat production						
In 1000 toe						
Geothermal	-	-	-	-	-	-
Biomass	1 541	1 702	1 993	2 313	2 805	2 904
among which:						
Wood, wood-waste	237	309	419	532	937	918
Municipal waste	457	494	506	487	484	543
Biogas	847	899	1 068	1 293	1 384	1 443
Final consumption of RES (excl. electricity)						
Total *In 1000 toe*	542	585	596	603	570	761
by sector:						
Industry	201	206	217	216	128	126
Services & households etc.	341	356	365	371	372	370
Transport	-	3	14	16	70	265
by source:						
Biomass	528	548	576	578	540	724
among which:						
Wood, wood-waste	396	396	396	396	300	300
Municipal waste	75	88	106	106	114	104
Biogas	57	61	60	60	56	56
Geothermal	1	1	1	1	1	1
Electricity generation from RES						
In GWh						
Solar photovoltaics	3	4	3	4	8	7
Hydro with installed capacity < 1 MW	21	20	14	28	44	48
Hydro with installed capacity > 1 & <10 MW	189	183	129	254	399	429
Hydro with installed capacity > 10 MW	3 845	4 585	3 085	4 561	4 478	4 128
Wood, Wood-waste	776	1 128	1 538	1 942	3 382	3 324
Municipal waste	1 408	1 452	1 544	1 554	1 542	1 734
Biogas	2 870	3 045	3 610	4 382	4 722	4 888

Short presentation of the company Greenenergy International LTD

Greenergy International LTD is a Great Britain based company, which has as main activity the supply of fuel and energy, with a low environmental impact. The history of the company begins in the year 1992 when it started the supply of low sulfur fuel to Swedish companies, a country which has emphasized through its legislation the protection of the environment. In the following years, the company had extended its activity by entering new markets like Great Britain, Germany and Switzerland. The year 2002 had represented a milestone for the company because of the introduction of the first biodiesel fuel, called GlobalDiresel. Growing demand for biodiesel products had determined the company to start an investment for the construction of a biodiesel production facility in the English harbor of Immingham (2004), a facility that started its production three years later (2007).

The development of the Tesco 90 Octane fuel used in the motor sports was the starting point of supplying with fuel the distribution fleet of, the well-known British retail-chain, Tesco. This commercial relation was solidified in February 2002 when Tesco bought a share of Greenergy International's equity. Another part of Greenergy International's equity was purchased by Barclays Capital (2006) – the investment division of the British bank Barclays.

The group structure of Greenergy International LTD contains four divisions or strategic business units: Greenergy Fuels LTD (its main activity is supplying petroleum and diesel in the UK) – with the subdivision Greenergy Biofuels LTD (owner of the biodiesel processing plants in Immingham); Greenergy Terminals LTD (UK owned terminals); Greenergy USA Inc. (Biofuel market in the USA). The fourth strategic business unit is ESD Camco LTD, representing a Joint-Venture between Greenergy and the personal of ESD. The main activity of ESD consists in consultancy, development and management of projects designed to implement the usage of fuel with low carbon emission.

Market segmentation of Greenergy International LTD

Market segmentation, together with market targeting and firm's positioning within the targeted markets, represents the strategic dimension of a company's marketing approach. The development of a marketing-mix specific for each identified market segment forms the operational dimension of a company's marketing approach. By using market segmentation, a firm is practicing a focused or "targeted" marketing or segment marketing. Market segments can be defined as groups of existing and potential clients which have the same needs and wishes (Kotler 2008) and which are manifesting the same buying behavior. Segment marketing offers the company some key advantages in comparison with mass marketing (mass marketing represents the intention of the seller to undertake a mass production, a mass distribution and a mass communication of the same product for all his customers). Through market segmentation, a company can adapt its product or service offer to the specific needs of

the targeted segment; communicating and distributing it to its customers in a more effective way.

Taking in consideration the specific activity of Greenergy InternationI LTD - production and distribution of petroleum products - it must be underlined the fact that the targeted market is not a consumer market, but a business market specific to the Business-to-Business marketing approach. A consumer market is made out of end consumers and the role of marketing is to study their behavior (consumer behavior). A business market, on the other side, can be defined as the totality of the organizations which are buying products or services with the purpose of producing other goods or services for selling or lending to other clients. A business market differs from a consumer market through several aspects like: less, but bigger buyers, close relation between the supplier and client, professional purchasing methods, a derivate and inelastic demand and direct buying.

According to the purchasing purpose of the company's clients (consumption or reselling), Greenergy International LTD is targeting two main market segments. A first main market segment contains all the organizations which buy the company's products with the purpose of using them within their complementary activities. Such organizations are: different local authorities, which buy the company's petroleum products for consumption within their transport activities, and retail-chains (e.g. Tesco), which are supplying their distribution fleet with the company's fuel. Greenergy International LTD satisfies their clients' needs through specific products according to their clients' specifications (the clients may have different demands regarding the biodiesel percentage within the purchased diesel). A main characteristic of the business market is the close relation between the supplier and the client. To solidify the commercial relation with Greenenergy Internation LTD, Tesco bought in 2002 25% of the company's equity, being the only British retail chain which has been investing in the petroleum products industry. Tesco was the first British retail chain which started using diesel with a concentration of 5% biodiesel for its distribution fleet. In December 2006, representatives of Tesco announced that 75 of their 2000 trucks will use diesel with a 50% concentration of biodiesel.

The second market segment targeted by Greenergy International LTD contains all the companies which distribute petroleum products (British Petroleum, Shell, Texaco, Total and other companies). The European Directive 30/2000, promulgated May 3, 2003 by the European Parliament and the European Council, is imposing to the member states of the European Union, that out of the total fuel consumption of the transport sector, 5,75% should be biodiesel consumption.

Distribution policy of Greenergy International LTD

The figure below illustrates the applied business model of Greenergy International LTD which represents the distribution policy of the analyzed company. One of the essential functions of the distribution is the fulfillment of the buying act, through which the property of the ware is transferred, respectively the successive

transfer of the property right from the producer to the consumer (Balaure V., coordonator). The marketing literature replaced the associated terms of distribution channel with marketing channels. A marketing channel is defined as a number of independent organizations involved in the process of assuring the availability of goods for consumption and usage (Lusch 1979). A marketing channel ends and another begins at the moment when the goods modify their composition (Stern). The aim of the distribution is to diminish the temporal and physical distance which exists between the producer and the final consumer. Relating the specific of the activity, Greenergy International LTD has both the position of a producer and that of an intermediary within a vast distribution channel system (a distribution channel system contains multiple marketing channels).

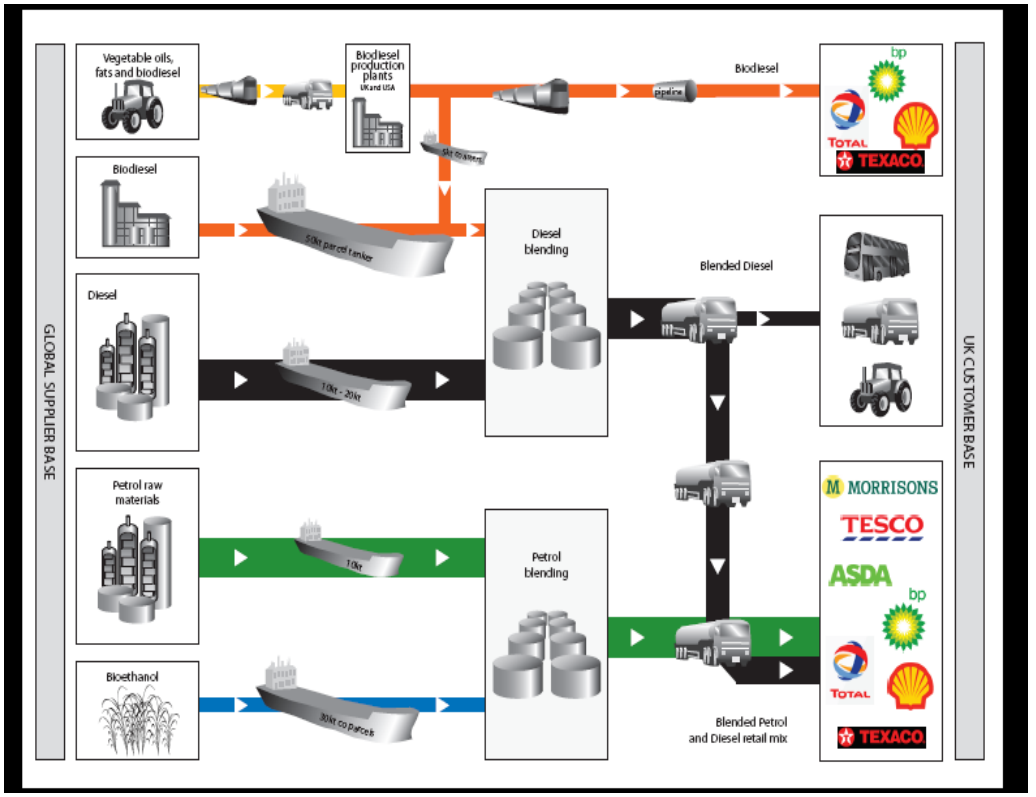


Figure 4 – Business model of Greenergy International LTD

A first marketing channel is represented by the process throughout which the natural resources (raps oil, palm oil, beet and soya oil necessary for the production of biodiesel are imported from Brazil/other global suppliers or directly purchased from local producers) reach the production facilities (terminals) owned by Greenergy International LTD, respectively the terminal of the Immingham harbor. The width of this marketing channel is determined by the number of units which assure the distribution of the product; in the analyzed case, the product distribution is assured through multiple means of transportation, from maritime transportation to the national Railway

System. This first marketing channel ends with the reception of the products at the terminal. Within the production facility, the imported oils are treated and mixed, and from this combination of activities the company's products result – biodiesel. Through the production process the substance of the products is not consumed, but transformed, indicating the end of this first marketing channel.

A second marketing channel is represented by the process through which the pure biodiesel (B100), ethanol (also imported or directly purchased from local suppliers) and other petroleum products reach the blending facility of Vopak (Rotterdam harbor). Within this blending facility, the named products are mixed in predefined percentages in order to obtain the four main products of the company. The blending process transforms the initial products suggesting the end of this second marketing channel. The width of this marketing channel is smaller than the first one, as only the maritime transportation is being used (sea crafts with a storage capacity of 10.000 to 50.000 tons are being used).

The last marketing channel describes the process through which the products of Greenergy International LTD reach their customers, which are the end users (local authorities, Tesco) and the resellers or petroleum products distributors (Shell, BP, Texaco).

The distribution policy of a company does not only contain the establishment of the marketing channel, but also the development of the strategy regarding the ware logistics.

Logistics is considered to be a competence which connects the company with its clients and suppliers through two main interconnected streams – ware stream and information stream. A logistic system should include the following three major elements:

- purchasing
- activities which are sustaining the production
- Physical distribution.

Regarding the purchasing practices of the analyzed company, it is important to underline the fact that Greenergy Internationl LTD developed with Proforest (a company which has a vast expertise in managing a sustainable exploitation of agriculture terrains) a set of criteria (social performance, conservation of biodiversity, conservation of the soil and other activities) that should be fulfilled by each of its global supplier. Based on these criteria, the company is periodically auditing its global suppliers.

The physical distribution is controlled through a set of indicators, like: fuel availability at key terminals, accuracy of invoices and haulage performance.

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